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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,433	03/26/2004	Min Chuin Hoo	15575US02	9795

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EXAMINER	
CHOW, CHARLES CHIANG	
ART UNIT	**PAPER NUMBER**
2618	

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/810,433	HOO ET AL.	
	Examiner	Art Unit	
	Charles Chow	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/26/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

1. It is to notice that applicant's preliminary amendment to the specification, dated 11/23/2004 & the status inquiry of this application, dated 11/19/2005, were considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 5-6, 12, 16-17, 23, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich et al. (US 4,704,734) in view of Akerberg (US 6,553,078 B1).

For Clam 1, Menich et al. [Menich] teaches a method for controlling an antenna system [abstract, steps & functions in Fig. 10-19], the method comprising

collecting information associated with at least one of a plurality of samples received by a portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the storing of the digital representation of the signal strength/rf energy data into storage locations for the measurement on primary sector antenna & its adjacent left, right, sector antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17] ; and

determining at least one starting antenna from said plurality of antennas based on said collected information received by said portion of said plurality of antennas [the recalling of the stored digital representation, & the strongest signal along with an identification of receiving antenna, as the starting antenna, are determined in abstract, from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12],

Menich teaches a cellular radio telephone system [col. 4, lines 10-13], but fails to teach

the collecting information associated with at least one of a plurality of frames received by a plurality of antennas.

Akerberg teaches the collecting information associated with at least one of a plurality of frames received by a plurality of antennas [the base station stores the measured BER from the received uplink frames on antenna A1, A2 & retrieves BER later from memory for a determination of uplink or down link antenna selection as the next, starting, antenna; implying the prediction of antenna selection based on the previously stored BER data, col. 4, lines 27056], in order to select best antenna based on the stored BER data. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich with Akerberg's BER of uplink frames, in order to improve the quality of the uplink frames with better BER via a selected antenna.

For Clam 12, Menich teaches a machine-readable storage having stored thereon, a computer program having at least one code section for controlling an antenna system [the microprocessor MC6809 provides controls according to the stored programmed steps, code section, in RAM & EPROM, the integral microcomputer of the signal strength detector in col. 10, line 63 to col. 11, line 30; & microprocessor 1302 reads & processes the retrieved signal strength information in col. 12, line 12, line 36 & line 54],

the at least one code section being executable by a machine for causing the machine to perform steps [the code section in steps in Fig. 20a to Fig. 21 & code section for the functions performed in Fig. 17] comprising

collecting information associated with at least one of a plurality of samples received by a portion of a plurality of antennas [the sequentially sampled signal strength in abstract; the storing of the digital representation of the signal strength/rf energy data into storage locations for the measurement on primary sector antenna & its adjacent left, right, sector

antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17] ; and

determining at least one starting antenna from said plurality of antennas based on said collected information received by said portion of said plurality of antennas [the recalling of the stored digital representation, & the strongest signal along with an identification of receiving antenna, as the starting antenna, are determined in abstract, from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12],

Menich teaches a cellular radio telephone system [col. 4, lines 10-13], but fails to teach the collecting information associated with at least one of a plurality of frames received by a plurality of antennas.

Akerberg teaches the collecting information associated with at least one of a plurality of frames received by a plurality of antennas [the base station stores the measured BER from the received uplink frames on antenna A1, A2 & retrieves BER later from memory for a determination of uplink or down link antenna selection as the next, starting, antenna; implying the prediction of antenna selection based on the previously stored BER data, col. 4, lines 27056; the code section for steps in Fig. 6 & the processor executes program for CU-BS & P-BS in col. 4, lines 12-16], in order to select best antenna based on the stored BER data. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich with Akerberg's BER of uplink frames, in order to improve the quality of the uplink frames with better BER via a selected antenna.

For Clam 23. A system for controlling an antenna system [col. 4, lines 10-13], the system comprising

a processor [1302, col. 8, lines 46-57; col. 12, line 12, line 36 & line 54] collecting information associated with at least one of a plurality of samples received by a portion of a

plurality of antennas [the sequentially sampled signal strength in abstract; the storing of the digital representation of the signal strength/rf energy data into storage locations for the measurement on primary sector antenna & its adjacent left, right, sector antennas, as the portion of a plurality sector antennas, col. 2, line 54 to col. 3, line 12; col. 11, line 31 to col. 12, line 38 , Fig. 17] ; and

a processor [1302] determining at least one starting antenna from said plurality of antennas based on said collected information received by said portion of said plurality of antennas [the recalling of the stored digital representation, & the strongest signal along with an identification of receiving antenna, as the starting antenna, are determined in abstract, from a portion of the plurality sector antennas, primary, left, right antennas, col. 3, lines 1-12],

Menich teaches a cellular radio telephone system [col. 4, lines 10-13], but fails to teach the collecting information associated with at least one of a plurality of frames received by a plurality of antennas.

Akerberg teaches the collecting information associated with at least one of a plurality of frames received by a plurality of antennas [the base station stores the measured BER from the received uplink frames on antenna A1, A2 & retrieves BER later from memory for a determination of uplink or down link antenna selection as the next, starting, antenna; implying the prediction of antenna selection based on the previously stored BER data, col. 4, lines 27056], in order to select best antenna based on the stored BER data. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich with Akerberg's BER of uplink frames, in order to improve the quality of the uplink frames with better BER via a selected antenna.

For Clams 5, 16, 27, Menich teaches receiving, measuring, signal on said portion of a plurality antennas [primary, left, right, sector antennas]. Akerberg teaches the collecting at least one of a plurality of selection metrics associated with said at least one of a plurality of frames received by said antennas [the first, second indicator for the reception quality from a set of several antennas, col. 6, lines 6-31; the code section for steps in Fig. 6 & the processor executes program for CU-BS & P-BS in col. 4, lines 12-16], using the same reason in claim 1 above for combining Akerberg to Menich.

For Clams 6, 17, 28, Menich teaches the wherein said at least one of a plurality of selection metrics is a power estimation [the signal strength Rssi is one of the metrics, from the signal strength processor 1270 in Fig. 17; the code section of steps in Fig. 20a-21].

3. Claims 2-4, 13-15, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Akerberg, as applied to claims 1, 12, 23 above, and further in view of Xu (US 2004/0203,550 A1).

For Clams 2, 13, 24, Menich & Akerberg fail to teach which portion for the wherein said portion of a plurality of antennas are receiving antennas and a remaining portion of said plurality of antennas are transmitting antennas.

Xu teaches these features [the Vant_1 to Vant_M, Vtx, Vrx are the antenna control signals for selecting antenna portion for receiver 204 and remaining antenna portion for transmitter 202, abstract, paragraph 0012], to improve the antennas switching, for sharing antennas to a receiver & a transmitter by the simple, low loss, high isolation, diode switching circuit [0002]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Akerberg with Xu's antenna switching, in order to improve antenna switching with the better switches, simple, low loss, high isolation.

For Clams 3, 14, 25, Menich teaches the method comprising selecting said at least one starting antenna from said receiving antennas [the selecting of one receiving, starting, antenna from primary, left, right sector antennas abstract, col. 3, lines 1-12; the code for steps executed by microprocessor 1320, Fig. 20a-21 for measurement process and antenna selection process, col. 4, lines 1-6].

For Clams 4, 15, 26, Menich fails to teach the selecting said at least one starting antenna from transmitting antennas.

Akerberg teaches the selecting said at least one starting antenna from said transmitting antennas [the selecting a starting antenna from antennas A1, A2 for transmitting next down link burst, in col. 4, lines 51-56; the code section for steps in Fig. 6 & the processor executes program for CU-BS & P-BS in col. 4, lines 12-16], using the same reason in claim 1 above for combining Akerberg to Menich.

4. Claims 7, 18, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Akerberg, as applied to claims 5, 16, 27 above, and further in view of Lyons et al. (US 2005/0095,987 A1).

For Clams 7, 18, 29. Menich, Akerberg fail to teaches the selecting at least one metric from plurality of selection metrics.

Lyons et al. [Lyons] teaches the selecting at least one of said at least one of a plurality of selection metrics to determine said at least one starting antenna [the antenna selection based on the signal power Rssi or based on the relative error vector magnitude EVM associated with error distance in paragraph 0116-0117, abstract, Fig. 1; the processor 735 executes program stored in memory 737, paragraph 0040-0041, the executed instruction & program code in paragraph 0140-0141], in order to select one antenna based on different

metrics to improve the signal quality. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Akerberg with Lyons' Rssi, EVM, in order to improve the quality with rssi or EVM.

5. Claims 8, 19, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Akerberg, as applied to claims 1, 12, 23 above, and further in view of Rozanski (US 5,530,926).

For Clams 8, 19, 30, Menich, Akerberg fails to teach the features for this claim. Rozanski teaches the selecting at least one of said at least one of a plurality of frames to determine said at least one starting antenna [the code steps 63-65, the measuring first, second half of slot N-1, col. 4, lines 16-37 & in a frame col. 4, lines 63-67, for accurately determine the signal power level, for next starting antenna selection], in order to accurately controlling the starting antenna selection by measuring the power in two halves of a slot. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Akerberg with Rozanski's two half power of a slot in a frame for the determining of the antenna selection, in order to accurately control the antenna selection based on the measured power for two halves of a time slot of a frame.

6. Claims 9, 20, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Akerberg, as applied to claims 1, 12, 23 above, and further in view of Nagashima (US 6,327,481 B1).

For Clams 9, 20, 31, Menich, Akerberg fail to teach the features for this claim. Nagachima teaches the determining said at least one starting antenna based on a majority polling scheme of at least a portion of said collected information [the majority polling occurs

when the accumulated phase error, the majority from the accumulated phase error, is greater than a threshold, the antenna is switched to a new, starting, antenna for next frame, abstract, col. 10, lines 51-55; the code steps in s208-s210, s216, s219 in Fig. 2B; a portion of collected phase information from one antenna, abstract], such that the phase error of the received signal can be improved by selecting a different antenna. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improving Menich, Akerberg with Nagashima's accumulated phase error, such that the phase error of the received signal can be improved by selecting a different antenna.

7. Claims 10, 21, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Akerberg, as applied to claims 1, 12, 23 above, and further in view of Nguyen (US 7,039,356 B2).

For Clams 10, 21, 32, Menich, Akerberg fail to teach the features for this claim. Nguyen teaches the determining said at least one starting antenna based on a weighted sum scheme of at least a portion of said collected information [the weight w(1) to W(M) is summed at 8200 for selecting at least one antenna as the starting antenna, to providing a better signal from antennas 810(1)-810(M), the weight is controlled by adaptive processor 8800, Fig. 8, col. 6, lines 3-28, for a portion of weight factor W(1) to W(M) selected information from antennas; code steps in Fig. 9-10], for providing a signal with highest amplitude & least adaptive error [col. 8, lines 14-20]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Akerberg with Nguyen's weight & sum, in order to provide a signal with highest amplitude & least adaptive error.

8. Claims 11, 22, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menich in view of Akerberg, Nguyen, as applied to claims 10, 21, 32 above, and further in view of Banister (US 6,456,647 B1).

For Clams 11, 22, 33, Menich, Akerberg fail to teach the features for this claim. Banister teaches the wherein said weighted sum scheme corresponds to the response of a first-order Infinite Impulse Response (IIR) filter or to the response of a Finite Impulse Response (FIR) filter [the antenna selection is based on the weight factor derived from simple, single tap, first order, IIR filter or the response of FIR, col. 7, lines 14-23 & col. 13, lines 24-34; it is well known that IIR filter or FIR filter is implemented in software code], in order to correctly decode a symbol [abstract]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Menich, Akerberg, Nguyen with Banister's IIR, FIR filter, in order to correctly decode a symbol.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. Kasami et al. (US2005/0113,038 A1) teaches the diversity antenna control [abstract & figure in cover page] having a later filing date 10/21/2004 than applicant's effective filing date of 2/24/2004.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or

proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow CC.

July 5, 2006.

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